

In the claims:

Please amend the claims as shown below:

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1. (Currently amended) A method for the continuous cooking of wood raw material for the production of cellulose pulp, comprising:

10 feeding a wood raw material and a cooking fluid to a top of a continuous digester;

establishing a cooking temperature of 130-170° in the digester while the wood raw material experiencing a retention time of at least 90 minutes at the cooking temperature;

15 the wood raw material sinking continuously through the digester from the top down to a bottom of the digester in order to finally expelling the wood raw material from the bottom of the digester;

20 arranging a first withdrawal position in the digester for the cooking fluid and arranging a second withdrawal position in the digester for the cooking fluid, the second withdrawal position being above the first withdrawal position;

25 withdrawing cooking fluid at the first and second withdrawal positions, the wood raw material having experienced a first retention time in the digester at the first withdrawal position and a second retention time in the digester at the second withdrawal position, the first retention time being at least 10 minutes different from the second retention time;

30 establishing a zone of a countercurrent or a concurrent flow in the digester between the first and second withdrawal positions;

providing an openable shunt line extending between the first withdrawal position and the second withdrawal position, the shunt line being in a closed position;

determining a differential pressure (ΔP) between the second withdrawal position and the first withdrawal positions falling below a first predetermined threshold value or rising above a second predetermined threshold value; and

5 opening the shunt line extending between the first and second withdrawal positions.

when a cooking zone of concurrent flow has been established between the first and second withdrawal positions
10 and when the differential pressure (ΔP) exceeds a predetermined level, opening a first connection between the first and second withdrawal positions; and
when a cooking zone of countercurrent flow has been established between the first and second withdrawal positions
15 and when the differential pressure (ΔP) falls below a predetermined level, opening a first connection between the first and second withdrawal positions.

2. (Currently amended) The method according to claim 1 wherein the first withdrawal position is constituted by a first withdrawal strainer that is located at the bottom of the digester in a wall section of the digester, and wherein the second withdrawal position is constituted by a second withdrawal strainer that is located above the first withdrawal strainer at a sufficient distance to ensure that the wood raw material at the second withdrawal strainer has had the first retention time that is at least 10 minutes, shorter in the digester compared to the first retention time of the wood raw material at the first withdrawal strainer and where a physical distance between the first and second withdrawal strainers is at least 2 meters, and wherein the digester has a third withdrawal position above the second withdrawal position so that cooking fluid at the third withdrawal position is withdrawn after the wood raw material has had a retention time

in the digester that is shorter and differs relative to the second withdrawal position by at least 10 minutes, and wherein a zone of concurrent flow or countercurrent flow is established in the digester between the second and the third withdrawal positions,

5 establishing a zone of a concurrent flow in the digester between second withdrawal position and the third withdrawal position;

10 providing an openable shunt line extending between the second withdrawal position and the third withdrawal position, the shunt line being in a closed position;

15 a differential pressure (AP) between the third withdrawal position and the second withdrawal position rising above a third predetermined threshold value; and

20 opening the shunt line extending between the second and third withdrawal positions.

25 ~~a differential pressure (AP) between the second and the third withdrawal positions is determined, and when a cooking zone of concurrent flow has been established between the second and the third withdrawal positions and when the differential pressure (AP) between the second and the third withdrawal positions exceeds a pre-determined level, a first connection between the second and the third withdrawal positions opens, and when a cooking zone of countercurrent flow has been established between the second and the third withdrawal positions and when the differential pressure (AP) between the second and the third withdrawal positions falls below a pre-determined level, a second connection between the second and the third withdrawal positions opens.~~

30 3. (Currently amended) The method according to claim 2 wherein the digester has a fourth withdrawal position so that cooking fluid at the a fourth withdrawal position is withdrawn after the wood raw material has had a retention time in the digester

that differs relative to that at the third withdrawal position by at least 10 minutes, and wherein a zone of countercurrent flow of concurrent flow is established in the digester between the third and the fourth withdrawal positions, a differential pressure (ΔP) between the third and the fourth withdrawal positions is determined, and when a cooking zone of concurrent flow has been established between the third and the fourth withdrawal positions and when the differential pressure (ΔP) between the third and the fourth withdrawal positions exceeds a pre-determined level, a third connection between the third and the fourth withdrawal positions opens, and when a cooking zone of countercurrent flow has been established between the third and the fourth withdrawal positions and when the differential pressure (ΔP) between the third and the fourth withdrawal positions falls below a third pre-determined level, a fourth connection between the third and the fourth withdrawal positions opens.

20 4. (Currently amended) The method according to claim 3 wherein
the digester has a fifth withdrawal position so that cooking
fluid at this fifth withdrawal position is withdrawn after the
wood raw material has had a retention time in the digester
that differs relative to that at the fourth withdrawal
position by at least 10 minutes, and where a cooking zone of
25 countercurrent flow or concurrent flow is established in the
digester between the fourth and fifth withdrawal positions,
a differential pressure between the fourth and the fifth
withdrawal positions is determined, and when a cooking zone of
concurrent flow has been established between the fourth and
30 the fifth withdrawal positions and when the differential
pressure (AP) between the fourth and the fifth withdrawal
positions exceeds a pre-determined fourth level, a fifth
connection between the fourth and the fifth withdrawal
positions opens, and when a cooking zone of countercurrent

~~flow has been established between the fourth and the fifth withdrawal positions and when the differential pressure (ΔP) between the fourth and the fifth withdrawal positions falls below a fourth pre-determined level, a sixth fourth connection between the fourth and the fifth withdrawal positions opens.~~

5 5. (Previously presented) The method according to claim 1 wherein the first connection opens such that a flow in the first connection between the first and second withdrawal 10 positions becomes parallel to a flow of cooking fluid established in the digester through a column of chips between the first and second withdrawal strainers.

15 6. (Currently amended) The method according to claim 1 wherein washing fluid is added at the bottom of the digester through a pressurized washing fluid line, a differential pressure between the washing fluid line and the first withdrawal position is determined, and when the differential pressure between the washing fluid and the first withdrawal position exceeds a pre-determined sixth level, a washing fluid line 20 connection opens between the washing fluid line and the first withdrawal position.

25 7. (Currently amended) The method according to claim 1 wherein wood raw material and cooking fluid are added at the top of the digester during the withdrawal of cooking fluid at the top of the digester in a top strainer in direct connection with the top of the digester, and wherein the top strainer withdraws cooking fluid from the wood raw material before the 30 wood raw material has experienced any significant retention time in the digester, the cooking fluid is returned to the input system of the digester through a return line, a differential pressure is determined between the return line and a withdrawal position that is arranged at the top of the digester and below the top strainer, and when the differential 35

~~pressure exceeds a pre-determined seventh level, a return line connection between the return line and the withdrawal position arranged at the top of the digester is opened.~~

5 8. (Currently amended) The method according to claim 1 wherein differential pressures between all withdrawal positions from the bottom of the digester up to an uppermost withdrawal position at which cooking fluid is withdrawn in order to be led away to a recovery process, are determined and ~~when the differential pressure between any of adjacent withdrawal positions exceeds pre-determined levels when a cooking zone of concurrent flow has been established between the withdrawal positions or falls below pre-determined levels when a cooking zone of countercurrent flow has been established between the withdrawal positions, connections are opened between the adjacent withdrawal positions.~~

20 9. (Currently amended) The method according to claim 1 wherein differential pressures between all withdrawal positions in the digester at which cooking fluid is withdrawn are determined and ~~when the differential pressure between any of adjacent withdrawal positions exceeds pre-determined levels, connections are opened between the adjacent withdrawal positions.~~

25 10. (Previously presented) The method according to claim 1 wherein cooking fluid is conditioned in an external treatment before being returned to the digester.

30 11-20. Canceled

35 21. (New) A method for the continuous cooking of wood raw material for the production of cellulose pulp, comprising: feeding a wood raw material and a cooking fluid to a continuous digester;

establishing a cooking temperature in the digester; the wood raw material sinking continuously through the digester from the top down to a bottom of the digester in order to finally expelling the wood raw material from the bottom of the digester;

5 arranging a first withdrawal position in the digester for the cooking fluid and arranging a second withdrawal position in the digester for the cooking fluid, the second withdrawal position being above the first withdrawal position;

10 withdrawing cooking fluid at the first and second withdrawal positions, the wood raw material having experienced a first retention time in the digester at the first withdrawal position and a second retention time in the digester at the second withdrawal position;

15 establishing a zone of a cooking liquid flow in the digester between the first and second withdrawal positions; providing an openable shunt line extending between the first withdrawal position and the second withdrawal position, the shunt line being in a closed position;

20 measuring a pressure difference between the second withdrawal position and the first withdrawal position; comparing the pressure difference to a reference value; the pressure difference being different from the reference value;

25 opening the shunt line; and establishing a flow of a portion of the cooking liquid in the shunt line, the flow in the shunt line being substantially parallel to the cooking liquid flow in the zone in the digester.